

**UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98055-4056**

In the matter of the petition of

Bombardier Aerospace

for an exemption from § 25.571(e)(1),
Amendment 25-72, of Title 14, Code
of Federal Regulations

Regulatory Docket No. 29239

GRANT OF EXEMPTION

By letter 84-20-2 dated May 7, 1998, Mr. Dan Burns, Manager, Airworthiness, DHC-8 Series 400 Certification, Bombardier Aerospace, Bombardier Inc., 123 Garratt Blvd., Downsview, Ontario, Canada M3K 1Y5, petitioned for exemption from the four pound bird strike requirement of § 25.571(e)(1) of Title 14, Code of Federal Regulations (14 CFR) from "V_C at sea level to 8,000 feet" in favor of "V_C at sea level or 0.85 V_C at 8,000 feet, whichever is greater." The petition was made for the Model DHC-8 Series 400 airplane.

The petitioner requests relief from the following regulations:

Section 25.571(e)(1) requires that the airplane be capable of successfully completing a flight during which likely structural damage occurs as a result of impact with a four pound bird at V_C at sea level to 8,000 feet.

ANM-98-026-E

Related section of the regulations:

Section 25.631 requires the empennage to be designed to withstand impact with an 8-pound bird at V_C at sea level.

Section 25.775 requires the windshield to be capable of withstanding impact with a 4-pound bird at V_C at sea level.

The petitioner's supportive information is as follows:

The petitioner based its request for this exemption on the Transport Airplane Directorate, ANM-100, letter dated December 9, 1992, which states that the FAA did not intend to make the bird strike criteria more stringent at altitude. It also states that the Transport Standards Staff agrees to look favorably upon requests for exemptions from the " V_C at 8,000 feet" requirement in § 25.571(e)(1), Amendment 25-72, until the rule can be changed in a later amendment. The airplane must be capable of successfully completing a flight during which likely structural damage occurs as a result of impact with a four pound bird at whichever true airspeed is greater, V_C at sea level or $0.85 V_C$ at 8,000 feet.

Extent of the Requested Regulatory Relief:

Relief is sought to permit use of " V_C at sea level or $.85 V_C$ at 8,000 feet, whichever is greater," instead of the current § 25.571(e)(1) requirement to test from " V_C at sea level to V_C at 8,000 feet."

Public Interest:

"This is an unnecessary burden to Bombardier and further is not in the public interest since it can result in higher costs, higher structural weights and less efficient airplanes."

Because the public has been given the opportunity to comment on previous petitions for exemption from this same requirement, and no comments were received, the FAA finds no reason to further delay issuance of the exemption in order to invite public comments on the Bombardier petition.

The FAA's analysis/summary is as follows:

The petitioner has requested relief from the requirements of § 25.571(e)(1), which requires that the airplane must be capable of successfully completing a flight during which likely structural damage occurs as a result of impact with a four pound bird at V_C at sea level to 8,000 feet. The original bird strike provision was adopted by

Amendment 25-45 and required the bird impact to be at "likely operating speeds from sea level to 8,000 feet." The term "likely operating speed" was open to interpretation and causing confusion so the FAA proposed a revision that would have required a specific structural design speed. The proposal was published as Notice 84-21, 49 FR 47358, dated December 3, 1984. The FAA proposed a single speed of V_C at sea level, which was consistent with other bird strike requirements in §§ 25.631 and 25.775. One commentor to the proposal pointed out that an artificially low value of V_C at sea level could be established for the sole purpose of reducing the bird impact speed. This would lead to unconservative impact airspeeds at lower altitudes where bird impacts are most likely. The FAA agreed and revised the final rule accordingly.

Most airplanes, except those with an artificially low V_C at sea level, have a near constant value of V_C knots equivalent airspeed (KEAS) from sea level to 8,000 feet. The same equivalent airspeed at 8,000 feet gives about a 13% increase in true airspeed above that at sea level. In Amendment 25-72, the FAA did not intend to make the rule more stringent at 8,000 feet than at sea level. The intent was to prevent an applicant from selecting an unrealistic value of V_C at sea level.

In conclusion, the FAA has determined that the Bombardier Model DHC-8 Series 400 airplane, upon compliance with the stated requirements, will meet the intent of the regulations with respect to the bird impact velocities defined in § 25.571(e)(1), Amendment 25-72.

In consideration of the foregoing, I find that a grant of exemption is in the public interest and will not affect the level of safety provided by the regulations. Therefore, pursuant to the authority contained in 49 U.S.C. §§ 40113 and 44701, delegated to me by the Administrator (14 CFR 11.53), Bombardier Aerospace is hereby granted an exemption from 14 CFR § 25.571(e)(1), for the Model DHC-8 Series 400 airplane.

This grant of exemption will remain in effect unless superseded or rescinded.

Issued in Renton, Washington, on June 25, 1998

/s/ John J. Hickey
John J. Hickey, Acting Manager,
Transport Airplane Directorate,
Aircraft Certification Service, ANM-100